ENVIRONMENTAL NEWS

Newsletter of the N.H. Department of Environmental Services January/February 2009

Moon over Mount Washington. Photo by Lee Wilder, NHGS.

New Alteration of Terrain Rules

New Alteration of Terrain rules have been adopted and are effective as of January 1, 2009. The new rules, identified as Env-Wq 1500, supersede the rules in Env-Ws 415 for all applications filed after January 1, 2009 and for any application filed prior to January 1, 2009 that is not complete as of that date. Any complete application filed prior to January 1, 2009 will be reviewed under the standards of Env-Ws 415.

Both the existing rules and the new rules establish requirements and procedures for obtaining permits under RSA 485-A:17 for activities that alter terrain and/or existing runoff conditions. These statutory provisions, and the rules that implement them, protect the State's surface waters by ensuring that terrain alteration activities are conducted in a manner that reduces the risk of adverse impacts to surface waters during construction, and that long-term stormwater control and treatment practices are incorporated into site development designs. The rules also specify the details for acceptable temporary and permanent stormwater management and erosion and sediment control during earth-disturbing activities for which a permit is required. Examples of such projects include dredging, earth moving, excavating, timber harvesting operations, and mining.

AoT Rules, *continued on page 8*

Commissioner's Column

Water: Vital to sustaining NH's quality of life

As a result of the recent ice storm, many of us were left in the dark for days without heat or water. This event certainly gave us time to reflect upon how much we expect these things to be available to us all without a second thought. As for water, New Hampshire is blessed with abundant high-quality water resources. And yet the state faces a number of significant challenges as we plan for the sustainable management of our water resources for the long term. To understand the scope of these challenges, DES has developed the *New Hampshire Water Resources Primer* from which to begin a discussion with legislators, town officials and the public about the future of our state's water resources.

The *Primer* outlines four key challenges. First, land development activities driven by economic and population growth can have profound impacts on water quality, water availability, and water-based recreational opportunities. Second, climate change, which is already bringing increasingly frequent extreme weather events to New Hampshire, is expected to exacerbate water quality problems, to test our readiness to deal with droughts and flooding, and to overwhelm the existing stormwater infrastructure in

Commissioner, *continued on page 2*

Commissioner

continued from page 1

many places.

Third, as is the case nationwide, New Hampshire's infrastructures for water supply, wastewater treatment, stormwater, and water storage (dams) need to be maintained, upgraded, or replaced, but no funding mechanism is in place to provide all of the needed money. Fourth, in order to inform the effective management of our water resources, we need to address critical data needs by expanding our efforts to gauge stream flows, monitor groundwater levels, gather water quality data, monitor the occurrence and spread of invasive species, and map flood-prone areas — all of which also require additional funding to accomplish.

The *Primer* is the first document that covers all of the water related topics of importance to policy makers in New Hampshire. The primer contains pertinent facts and statistics about the state's water resources, water use, water infrastructure and water law. Individual chapters cover rivers, lakes and ponds, groundwater, wetlands, coastal and estuarine waters, water use and conservation, drinking water, wastewater, stormwater, dams, and floods and droughts. Each of these chapters provides information on the topic, discusses issues related to it, and examines current management efforts. Each chapter also presents some key stakeholder recommendations that encompass funding and legislative actions that should be debated.

To deliver the important message that the *Primer* has to tell, we plan to take it to every corner of the state. In the next few months, a series of public information sessions will be offered to engage town officials, state legislators and the public about the water resources challenges facing New Hampshire. I urge state and local decision makers and all citizens to take advantage of this opportunity to shape both the state's water plan process and our water resources future.

To view the *Primer* and other related information, visit DES's website at www.nh.gov/des under "What's New." We would welcome your thoughts and comment at dwgbinfo@des.nh.gov.

Tom Burack, *Commissioner*

It's National Radon Action Month

Wintertime is a good time to be aware of the potential for radon gas in our homes because our windows are closed and we spend more time indoors. Radon is a tasteless, colorless and odorless naturally-occurring radioactive gas that results from the natural breakdown of uranium in soil and rocks. Radon can get into the air you breathe and the water you drink. It is important for New Hampshire residents to test their homes and private well water for radon, as the "Granite State" has higher-than-average radon levels and exposure potential.

Radon is the second leading cause of lung cancer after cigarette smoking and the leading cause of lung cancer in non-smokers. In New Hampshire it is estimated that radon causes more than 100 lung cancer deaths per year.

Twenty-four thousand residential radon tests have been conducted since 1987 as part of the New Hampshire radon survey. The results of the survey show that the chance of having elevated radon is higher in the south central, southeast, and northeast regions of the state. However, DES recommends that all New Hampshire residents test their homes for radon in the air, as every town surveyed in the annual radon survey has found some homes with levels above the action level of 4.0 pCi/L (picocuries per liter) of air.

Testing for radon in air and water is inexpensive and do-it-yourself test kits can be purchased from the Internet and at major hardware stores. Testing is the only way to know if your home or well water has elevated radon levels. A radon measurement professional can also be hired to conduct a radon test for air and water.

For more information on testing for radon in your air and water, contact the DES Radon Program at (603) 271-6845 or visit www.des.nh.gov and search for "Radon." ■

In Memory of
David S. Chase, Ph.D.
Manager, DES Radon Program
November 24, 2008

Missed by his many friends and colleagues.

ENVIRONMENTAL NEWS

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Nitrogen impairments for the Great Bay Estuary

by Philip Trowbridge, P.E., DES Watershed Management Bureau

The Great Bay/Piscataqua River system, the largest estuary in New Hampshire, is recognized as an estuary of "national significance" by EPA and is the site of NOAA's Great Bay National Estuarine Research Reserve. The estuary supports wildlife by providing habitat and functioning as a nursery and is valued by humans for recreation and commerce. The watershed for the estuary covers 1,023 square miles and is home to 14 percent of the population of New Hampshire and Maine.

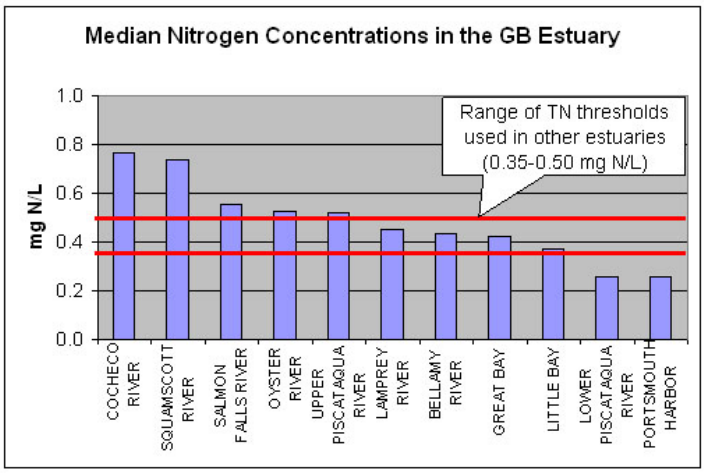
In 2006, the New Hampshire Estuaries Project published a State of the Estuaries Report, which highlighted increasing nitrogen concentrations in the estuary and associated loss of eelgrass habitat (www.nhep.unh.edu/resources/soe_report.htm). Eelgrass is a type of submerged aquatic

vegetation, which is an important habitat for fish and other species. The report motivated DES and its partners at UNH and in other agencies and organizations to study the effects of excess nitrogen on the estuary and to determine how much nitrogen was too much.

In 2008, DES included four of the tidal tributaries to the Great Bay/Piscataqua River in violation of the narrative criteria for nutrients as part of the 2008 list of impaired waters that EPA sends to Congress. Narrative criteria are water quality standards that describe a condition to be maintained but do not set a numeric limit. DES also evaluated historic and current maps of eelgrass in the estuary and found most of the estuary impaired due to eelgrass loss using the narrative criteria for biological integrity.

Starting in 2005, DES has also devoted significant resources to developing numeric criteria for nitrogen in the estuary. Numeric criteria are more practical than narrative criteria when making permitting decisions. The NHEP partnered with DES to accelerate the nutrient criteria development process by dedicating staff time to develop methods, forming a technical working group to review approaches and proposed criteria, and supporting additional research to fill data gaps. DES used the methods developed by the NHEP to establish proposed numeric nutrient criteria for nitrogen for the estuary. The proposed criteria are currently being peer-reviewed. DES expects to use the numeric criteria to determine nitrogen impairments on the 2010 list to Congress. It is likely that additional waters will be added to the list as a result.

It is expected that these nitrogen impairments in the estuary will result in many new management and regulatory implications in the Great Bay watershed. First, existing NPDES permitted sources, such as wastewater treatment and stormwater outfalls, will need to hold their nitrogen loadings at current levels. Second, new sources and revised permits within the upstream watershed of an impaired waterbody would have to demonstrate zero additional loads of nitrogen or arrange for trading within the watershed. The "hold the load" restriction would continue until a total maximum daily load (TMDL) is completed, at which point the load allocations from the TMDL would become effective. The TMDL allocations will likely require reductions in loading. While the immediate implications are focused on point sources, initial estimates indicate that at least half of the nitrogen load to the estuary is from nonpoint sources. Therefore, all the residents and visitors to the watershed will need to help to reduce the load of nitrogen reaching the estuary. ■



New multi-media permit for auto salvage yards

A recent change in state law requires DES to establish general permits for auto salvage yards and auto crushers. The general permits, which will be established through the administrative rulemaking process, will contain terms and conditions for the regulation of all aspects of the operations to assure protection of environmental quality and compliance with existing environmental regulations. This includes requirements for managing fluids, including gasoline, oil antifreeze and other regulated substances, as well as requirements for managing solid waste, hazardous waste, universal waste, refrigerants and other potential air pollutants, and other regulated substances, materials and waste.

The auto salvage industry is the leading recycling industry in the United States, responsible for recycling between 75 percent and 85 percent of the material content of end-of-life vehicles, by weight. This contributes significantly toward conserving natural resources and reducing the demand for landfill space.

However, poorly operated auto salvage yards and crushers can have a serious adverse impact on environmental quality. Auto salvage yards and crushers handle many types of fluids, including gasoline, oils, anti-freeze and solvents. Each of these has the potential to contaminate the environment if not properly handled. In addition, motor vehicles contain many other hazardous materials, including mercury in light switches, ABS brake systems and head lights; acutely toxic sodium azide in air bag cartridges; lead in wheel weights and lead acid batteries; and chlorofluorocarbons (CFCs) in air conditioning systems. Auto salvage yards and crushers are ultimately responsible for knowing how to properly manage each of these materials. The quality of their work is critical to protecting our environment, public health, and safety.

In New Hampshire, there are over 150 auto salvage yards handling tens of thousands of vehicles annually and there are a number of auto crushers operating throughout the state. Many yards and crushers are doing a good job complying with environmental protection requirements. However, over 25 percent of the auto salvage yards in this state are known to have caused groundwater contamination and an even larger percentage has other environmental compliance issues.

The new general permits will improve the way DES currently regulates the auto salvage industry and the agency's compliance assurance efforts. At present, at least nine different DES programs and corresponding sets of administrative rules apply to various aspects of salvaging and crushing end-of-life motor vehicles. By consolidating all of those existing regulatory requirements into one place under the terms and conditions of a general permit, DES will be able to provide more consistency and improve efficiencies in its efforts to assure facilities are complying with environmental protection requirements.

After the general permits are established by rule sometime in 2009, auto salvage yard owners and crusher operators will be required to register to use the permits as applicable to their businesses. Registration is free. The owner will have to provide information about the facility location and operation, a copy of the facility's local license, and either a signed statement certifying compliance with the terms and conditions of the general permit or a proposed plan and schedule for achieving compliance within a reasonable time. ■

Volunteer river committees win 2008 spirit of NH Award

DES proudly announces that the Local River Management Advisory Committees received the 2008 Volunteer Champion Award in the State and Local Government category for their tireless efforts to advise DES and their communities on actions and issues to protect and manage the state's 15 designated rivers. The award was presented by Senator-elect Jeanne Shaheen, in collaboration with Volunteer NH! and the Governor's Office. ■

Senator-elect Jeanne Shaheen (far left) and Volunteer NH! Executive Director Tim Dupre (2nd from right) present awards.

Darlene Forst
2008 DES Employee of the Year!

Selected by her peers, Darlene Forst was recently presented with the 2008 DES Employee of the Year by Commissioner Tom Burack.

In 2005-06, Darlene served as the secretary to the Comprehensive Shoreland Protection Act Legislative Study Committee, a group charged with identifying improvements to a very "visible" DES program with widespread impacts. From the first days of the study committee through the present, Darlene has worked tirelessly to assist in the drafting of legislation and rules, and complete many other related administrative tasks – all dedicated to ensuring the successful development and implementation of the new CSPA. For example, in 2008, Darlene and her staff developed and provided outreach programs and presentations on the amended CSPA, which reached more than 1,500 people across the state.

Commissioner Burack congratulates Employee of the Year Darlene Forst.

Because of Darlene's tenacious dedication, incredible work ethic, and her amazing ability to craft practical and scientific solutions to allow development within New Hampshire's sensitive shorelands, she has been selected as the 2008 DES Employee of the Year. Congratulations, Darlene! ■

DES staff recognized for service milestones

35 YEARS

Rene Pelletier	WD
Bernard Lucey	WD
Robert Estabrook	WD

30 YEARS

Pamela Hoyt-Denison	WMD
Richard Berry	WMD
Richard Pease	WMD
Susan Carlson	CO

25 YEARS

Timothy Drew	CO
Arthur St. Jacques	WD
Michael Sills	WMD
Brenda Clark	CO
Nancy McGrath	WD
Michael Rainey	WD
Robert Mann	WD

20 YEARS

Sue Lang	CO
Worthen Muzzey	WMD
David Yeo	WD
Thomas Niejadlik	ARD
Craig Wright	ARD
Andrew Bodnarik	ARD
Brenda Hayward	WD
Andrew Stout	WD
Barbara Aube	WD
Selina Makofsky	WD
Malgorzata Bomba	CO
Michael Juranty	WMD
Holly Green	WD
Nancy Daigle	CO
Judy Small	WMD
Frederick Treiss	WD
Jo-Ann McKenney	WD
Gretchen Hamel	CO
Scott Ashley	WD
Raymona Freese	CO
Joy Perkins	ARD
Frederick Gobeille	WD
Kenneth Noyes	WD
Melanie Wheelock	WD
Timothy Denison	WMD
Patricia Siekaniec	CO
Joseph Donovan	WMD
Franz Vail	WD

15 YEARS

Harry Stewart	WD
Thomas Hyde	ARD
Joseph Fontaine	ARD
Mark Stevens	WD
Michael Guilfoy	WMD
Stephen Cullinane	ARD
Rebecca Lawrence	WMD
C. Wayne Ives	WD
Mitchell Locker	WD
Douglas Smith	WD
Sandra Kocher	CO
George "Bill" Hall	WD
Douglas Kemp	WMD
Heather Chase	CO

10 YEARS

William Fitzgerald	ARD
Gregory Barker	CO
Craig Thoroughgood	ARD
Robert Stockman	ARD
Joan Fitzsimmons	WD
Douglas Laughton	ARD
Sandra Crystall	WD
Richard Rumba	ARD
Margaret Foss	WD
Teresa Ptak	WD
Timothy Prospert	WMD
Linda Krueger	WMD
Thomas Livingston	ARD
Pamela Berube	CO
Debra McDonnell	CO
Linda Magoon	WD
Barbara Fales	ARD
Daniel Mattaini	WD
David Murphy	WD
Rebecca Ohler	ARD
Brian Hilliard	WD
Michael McCluskey	WMD
Lucio Barinelli	CO

Food! Glorious food!

Pam Matott, Grants Management, was one of the driving forces in the hugely successful DES 2008 Holiday Food Drive— a total of 7,619 food items were collected for the Concord Regional Food Bank! At right, shopping carts filled with some of the DES-donated goods await pickup by local food banks. Thank you to all who participated!

Innovative idea protects home heating oil tanks

If you combine the high percentage of homes in New Hampshire that heat with fuel oil or kerosene with the large number of similarly heated mobile homes, you end up with literally thousands of outdoor heating oil tanks in the state. Many other dwellings such as camps, cottages, second homes, and structures built on slab foundations have outdoor tanks that are exposed to the elements. Many of those tanks have supply lines and filters that come off the bottom of the tank and are exposed to the elements. Such an arrangement is often the source of spills caused by damage from falling roof ice and snow each year and especially heavy snow years as we experienced during the winter of 2007-08. Along with the concern about ice and snow, exposed lines and filters are subject to accidental damage from objects such as falling ladders, lumber, and foot traffic.

The DES SAFETANK program has been in effect for nearly nine years. This very successful financial assistance program seeks to help low-income households replace or upgrade their substandard heating oil tank systems before they leak. With limited funding over the past year, DES had to develop new ideas for spill prevention. Our answer came from the state of Maine as well as the Canadian Maritime Provinces in the form of unique steel filter covers.

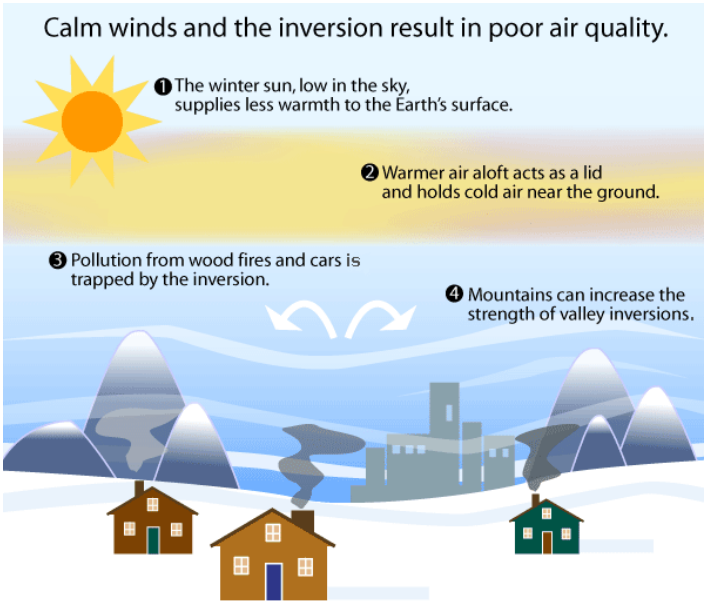
DES encourages the installation of tanks with a top-draw supply line system as detailed in our best management practices. However, there are a lot of existing tanks out there with exposed filters and lines. In an effort to reduce the risk and the number of releases from these systems, DES is providing rugged galvanized steel filter covers to oil companies and plumbing and heating contractors to distribute and protect the highest risk systems. DES will distribute several hundred of these covers. There is no cost to the homeowner, but we do require that the oil companies and contractors inform DES of where these covers are distributed so we can track the success of this unique method to protect outdoor heating oil tanks.

For more information, contact Jack Chwasciak at (603) 271-3577. ■

What you can do to improve air quality this winter

- Have a trained professional inspect, clean, and tune up furnaces, flues and chimneys annually. Repair any leaks promptly.
- Do not use a gas oven to heat your home, and keep all gas appliances properly adjusted.
- Install and use an exhaust fan vented to outdoors over gas stoves.
- Provide adequate ventilation when using woodstoves and fireplaces, keep them clean and in good condition, and operate them properly.
- Choose well-seasoned, dry hardwood for wood stoves and *never* burn household trash in a wood stove - it is against the law!
- When buying a wood stove, select a clean-burning EPA certified stove and make sure it is the proper size. Consider replacing an old wood stove with a new one that will burn less wood and be more efficient.
- Install carbon monoxide alarms with battery backup in sleeping areas and test them frequently.

For more information, please contact the DES Air Resources Division at (603) 271-1370 or www.des.nh.gov. ■



During a temperature inversion, pollutants released into the air from vehicles, heating devices, and industries become trapped and concentrated near the ground. With increased wood burning on cold, clear, calm nights, smoke is unable to rise and disperse, leading to poor air quality.

DES rids 29 Hazen of invasive bushes

Impacts to the natural environment resulting from invasive plants have become a significant issue throughout North America, and New Hampshire is no exception. Non-native invasive species such as purple loosestrife (*Lythrum salicaria*), Japanese knotweed (*Polygonum cuspidatum*), and Oriental bittersweet (*Celastrus scandens*), to name a few, are widespread and easily recognized for their destructive impacts to native species. However, to the untrained eye, not all invasives appear to be as problematic as others, like burning bush (*Euonymus alatus*), which is prohibited by Administrative Rule Agr 3800.

In late November Doug Cygan, invasive species coordinator for the Department of Agriculture, Markets and Food, Arlene Allen, James Martin and other volunteers from DES joined forces to remove the eight burning bush flanking the main entry way to the DES building at 29 Hazen Drive and replace them with alternatives, which include redvein Enkianthus, *Fothergilla*, winterberry and high bush blueberry. ■

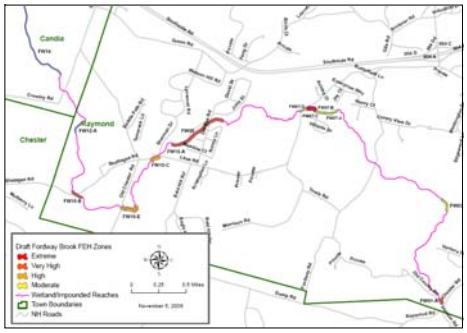
The colorful, but problematic, burning bushes at DES (left) were replaced recently by Fothergilla and other native species (right).

New model ordinance to prevent storm damage

A recent DES study and model ordinance takes into consideration the movement of water and soil, or fluvial erosion, a hazard that poses a threat to people and development. Effects of fluvial erosion range from gradual changes in a stream bank to catastrophic changes in river channel location and size during flood events. Community members in Raymond experienced this firsthand when during the floods in April 2007, Fordway Brook changed course to blast through a culvert and run over Old Bye Road, shutting down the road for days.

The new model ordinance includes an overlay district of fluvial erosion hazard (FEH) corridors, which include the stream and land adjacent to the stream. Corridors are given a sensitivity rating according to their vulnerability to FEH, giving town planners information on where this hazard is most likely to occur. The ordinance is not mandatory, but available for consideration on a town by town basis.

The overlay district was created using data collected from a fluvial geomorphology study conducted last summer in the Exeter River watershed, which includes the town of Raymond, by DES Watershed Assistance and Geologic Survey with Coastal Program funding assistance. The project was also supported by FEMA and the NH Department of Safety, Division of Homeland Security and Emergency Management. Geomorphic data used to predict water and sediment flow include width and depth of the river channels and the location of human and natural barriers, such as existing development and beaver dams.



During the fall, the Raymond planning board invited NHDES staff to present the FEH concept and expressed interest in further developing the FEH ordinance for inclusion on a future town meeting ballot. The Fordway Brook sub-watershed of the Exeter River is one of four subwatersheds that was part of the stream geomorphic assessment study.

If Raymond moves forward with this effort, they would be the first New Hampshire community to adopt an FEH ordinance.

The fluvial erosion hazard is different than flooding inundation – when land is simply overwhelmed with too much water. Riparian buffers and floodplain mapping, such as those maps provided by the National Flood Insurance Program, do not protect against FEH because they are static setbacks based on the river at its most stable condition.

Avoidance is the most cost effective approach to mitigating fluvial erosion hazards, and an FEH overlay district can be used by town planners to place restrictions on development and land uses in the FEH corridors. Building a new structure on an eroding bank, for instance, can be avoided by using FEH information. Other uses of the geomorphic data include stream and floodplain restoration projects, bridge and culvert replacement priorities and river corridor protection opportunities.

For more information on FEH, see www.vtwaterquality.org/rivers/docs/rv_municipalguide.pdf (DES has been piloting this effort on Vermont's program). ■

Economic stimulus through DES remediation programs

During business cycle downturns, state government revenues decrease and spending is cut to balance the budget. State budget cuts, according to Keynesian economic theory, can exacerbate economic downturns by pulling additional money out of the economy. DES works hard to minimize the economic impacts of spending cuts and to facilitate worthwhile projects. Recent Remediation Program activities exemplify how DES maximizes the benefit to the state and its people from every dollar spent.

Keynes proposed another theory, that each dollar of government spending has more than a dollar of impact, known as the multiplier effect. The DES Brownfields Revolving Loan Fund exemplifies the multiplier effect. The fund provides low interest loans, which function as bridging loans when conventional loans are not available. These Brownfields loans provide the necessary funding to plan and complete site cleanup, and thereby position a property for conventional funding for redevelopment. As a result, these loans leverage additional construction spending that would not happen otherwise. To date, eight loans totaling $3.1 million have been executed for sites across the state.

Another DES Brownfields program that stimulates the economy is the Assessment Program, which provides technical assistance on behalf of municipalities and non-profits to characterize contamination at properties slated for redevelopment. In the past year, more than $400,000 in federal funding for this program has been provided by EPA. As a result, several brownfields properties have been assessed or are being assessed and will likely be positioned for cleanup and reuse in 2009-10 as public and private funding becomes available. The Assessment Program also provides technical assistance to other parties who have received EPA Brownfields Assessment Grants or EPA Cleanup Grants. These EPA grantees include most of the regional planning commissions in the state and several municipalities.

DES's Petroleum Reimbursement Funds pay for petroleum cleanups at approximately 1,000 state sites. DES cleanup funding played a key role at six, $1 million-plus construction projects in 2008.

Although DES's primary mission is the protection and restoration of the environment, addressing underlying economic issues at contaminated sites via loans or grants for environmental assessment and cleanup simultaneously fosters economic progress. DES is committed to providing these services at current or increased levels to help assure that these properties will be developed as economic conditions improve. ■

AoT Rules

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The revisions and additions to the existing rules are intended to clarify the existing rules, create categories of permits-by-rule, provide greater specificity on the information required for a permit application, require site-specific soil mapping at development sites, amend the requirements for acceptable stormwater control and treatment practices for the protection of surface waters, provide more protective measures for stream channel protection, require groundwater recharge to maintain groundwater levels and their replenishment of surface waters, mitigate the effects of development, require the evaluation of potential increased flooding due to development within floodplains, and require long-term maintenance of stormwater treatment practices.

The new permit-by-rule provisions will allow people to undertake activities without applying for an Alteration of Terrain permit so long as the conditions specified in the rules are met. The conditions are designed to ensure that any potential impacts are minimized.

The rules as adopted do not contain the antidegradation requirements that originally were proposed (Env-Wq 1507.07). While the antidegradation requirements are very important, the Department recognizes that more time is needed for stakeholder input on this issue. The Department is planning to form an advisory work group to discuss and finalize the antidegradation section and how it will be implemented. If you are interested in being on this work group, please email Jillian McCarthy at jillian.mccarthy@des.nh.gov. ■

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

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